

V.—*On new and little-known Mantodea.*—By J. WOOD-MASON.

(Read August 2nd, 1882.)

Subfamily AMORPHOSCELIDÆ, Stål.

AMORPHOSCELIS ANNULICORNIS.

Stal, Oefersigt af Kongl. Vetenskaps-Akad. förhand. Stockholm, 1873, p. 401.

I received an imperfect spirit specimen of this small but remarkable form several years ago from Nazeerah, Assam; and, while I was in England on furlough in 1877-79, Professor Westwood presented me with a dried female which, although also defective in many respects, has those parts present that in the Assam insect are absent, and which enables me to complete Stål's somewhat imperfect diagnosis drawn up from a specimen that had lost its abdomen. This part is long and almost linear, tapering very slightly and gradually towards the extremity, which extends a short distance beyond the closed organs of flight; its supra-anal plate is triangular with the sides slightly concave, as long as it is broad at the base, and carinate; and the cerci are racket-shaped, the basal joints being cylindrical, the two penultimate ones compressed and subfoliaceous, and the last expanded into a great broadly-oval plate. The anterior tibiæ have the tarsus inserted rather nearer to the base than to the apex, although from Stål's description—"tarsis anticis ante medium tibiarum insertis"—one would have expected to find the reverse of this to be the case.

Subfamily EREMOPHILIDÆ.

CHERADODIS BRUNNERI, n. sp.

♀. Closely allied to *Ch. rhombicollis*, Latr., and *Ch. Servillei*, W.-M., differing from both in the size, shape, and position of the femoral blotch (which is nearly thrice as long as broad, extends rather further in front of the unguis groove than it does behind it, and is followed by four black puncta arranged along the lower margin of the joint at the bases of alternate spines), and in having the posterior margin of the pronotum slightly convex instead of concave; from the former in its much narrower and from the latter in its rather broader tegmina; and from the latter in the upper margin of its fore femora being coarsely granulated, and sinuous instead of straight, in which latter respect it approaches the former.

HAB. Santa Fé de Bogotá, New Granada. The nymph from Bogotá assigned by me (J. A. S. B., 1880, Vol. XLIX, pt. II, p. 83) with hesitation to *Ch. rhombicollis* agrees perfectly with the specimen briefly described above in the form and colouring of the fore femora and without

doubt belongs to the same species, as also in all probability do the specimens from New Granada named *Ch. strumaria* by Stål.

EREMOPHILA ARABICA.

Saussure, Mél. Orthopt. 3 me fasc. Suppl. 1871, p. 378, ♀, from Djeddah.

For the first specimen of an *Eremophila* from the desert country on the north-western frontier of India, I am indebted to Mr. Francis Fedden, of the Geological Survey, who obtained it in Western Sind. It is a female, and it differs from de Saussure's description of the above species only in having five instead of four spines on the outer edge of the fore tibiæ. I have recently received from Mr. Murray of the Karachi Museum three females and two males of the same species, which exhibit a considerable amount of variation in size, in the roughness of the integument, and in the number of spines on the outer edge of the fore tibiæ, two specimens having only four and another only three developed on one tibia but the usual number on the other in each case. A male taken some years ago in the Suliman Range, and presented to me with some other insects, by Professor V. Ball, differs from the Sind specimens in having the band on the underside of the tegmina broader and 14 teeth instead of 13 on the inner side of the fore tibiæ.

The four posterior legs, of which de Saussure makes no mention in his description, and which may have been wanting in his type specimen, are all annulated with brown and roughened with spiniform granules on the upperside in the Indian specimens.

No species of this remarkable desert genus has before been recorded from any place further to the eastward than Djeddah in Arabia.

TARACHODES INSIDIATOR, n. sp.

♂. Body and appendages brown of the colour of a dead and decayed leaf. Antennæ rather coarsely setaceous. Pronotum with a polished conical spine on each side at the junction of the anterior with the lateral margin, which is obsoletely denticulated as far back as the level of the supracoxal groove.

Organs of flight extending by about 1/6 of their length beyond the extremity of the abdomen, not quite perfectly hyaline, being just perceptibly milky, with the veins and veinlets horn-coloured, short-streaked or annulated with darker in the anterior area of both pairs, though much less distinctly so in the wings than in the tegmina, the latter semiopaque horny anteriorly, as also are the former in a less degree; the stigma of the latter long and linear, pale whitish-brown, almost colourless.

Legs obsoletely and rarely punctated and mottled with darker, and only moderately pubescent. The anterior ones marked with darker-brown (? red in the living insect) on the inner surface, the smooth-crested coxa

being tipped at both ends, the trochanter streaked, and the femur ornamented along the middle with a streak commencing at the base and tapering to a point before the extremity of the joint; fore tibia furnished with 15 and 13 spines on the inner and outer edges respectively.

Abdomen slightly fusiform, with at least the 2nd to 7th of its ventral arcs bimaculated with dark brown. Cerci rather broad.

Total length 47 millims.; height or length of head 6·5, breadth 8; length of pronotum 11·5, greatest breadth (between the lateral bulgings) 6; length of meso. + metanotum = 10; of abdomen 23·5, greatest breadth of abdomen 6·75; length of tegmina 40, breadth (just before the middle) 11·5, of the marginal field 2; length of wings 35; length of fore coxa 7, femur 10; of intermediate femur 7, tibia 6·75; of posterior femur 8·75, tibia 8·75; of cerci. 7.

HAБ. Nyassa.

TARACHODES DISSIMULATOR, n. sp.

♂. Pale greyish testaceous or earth-coloured, with the head, the upper (outer in the anterior ones) surface of the legs, and the pronotum symmetrically, speckled and mottled with darker.

Head with the line of the vertex very slightly bisinuuous. Antennæ extremely finely-setaceous. Pronotum with two conical tubercles on each side at the junction of the obsoletely denticulate lateral with the anterior margin, which latter has a minute rounded median emargination.

Organs of flight in repose extending but little beyond the extremity of the abdomen, not quite hyaline, with veins and veinlets pale testaceous marked, especially in their anterior area, with dark brown short coalescent streaks, both more clouded anteriorly, the tegmina with an oval discoidal pale patch before the middle devoid of dark marks followed by another irregular and less distinct; the stigma shorter and brownish. Legs and leg-bases long-pubescent; the anterior pair internally yellowish and conspicuously marked with shining black, the coxa (which has its upper crest minutely 4-denticulate) throughout except at its two ends, and the femur from the base to the end of the second third, processes being given off from the lower margin of the black patch to all but the apical one of the black spines of the inner and inferior crest and from its distal end along each side of the femoral brush; fore tibiæ armed internally with 14 teeth concolorous with the outer surface and internally with the same number of jet-black spines.

Prosternum marked behind the middle with a large and conspicuous deep, but dead, black cordiform blotch, which is succeeded by a pair of similarly coloured puncta placed near the posterior margin of the somite; and by a small roundish, also dead black, spot on the middle of the meta-thoracic sternum.

Abdomen more broadly fusiform; its cerci, though narrow, have the four or five terminal joints distinctly foliaceous.

Total length 41 millims.; height of head 6, breadth 7.25; length of pronotum 10.5, greatest breadth 5.25; length of meso. + metanotum 9; of abdomen 20, greatest breadth 7; length of tegmina 31, breadth 8.5, of the marginal field 1.5; length of wings 26; of fore coxa 6.5, femur 9.5; of intermediate femur 6.5, tibia 6; of posterior femur 7.5, tibia 7.5; of cerci 5.5.

HAB. Cameroon Mountains, West Africa.

Genus DIDYMOCORYPHA, W.-M.

Ann. and Mag. Nat. Hist. 1877, March, p. 222.

DIDYMOCORYPHA ENSIFERA.

Didymocorypha ensifera, Wood-Mason, loc. cit.

Pyrgocotis gracilipes, Stål, Syst. Mant. 1877, p. 17, ♂.

In the structure of the head this remarkable form differs from the similar and allied *Pyrgomantis* of Africa in having the juxtocular lobes prolonged into two tall cones which touch one another in the middle line instead of the middle of the vertex together with the juxtocular lobes elevated into a median azygous process.

The part of my description (*loc. supra cit.*) relating to the prothorax should read thus:—"Prothorax narrow, with its sides suparallel, slightly narrowed behind the insertion of the fore legs, then widening again slightly to its base; its supracoxal dilatation and cervical groove hardly perceptible; its neck quadrate; its disk," &c., &c.

The structural differences between the Asiatic *Schizocephala bicornis* and the African *Episcopus* (olim *Schizocephala*) *chalybeus* are of similar kind and of equal importance; in the former the "ocular spines" are in reality prolongations of the juxtocular lobes of the vertex, while in the latter the faceted cornea of the eyes is itself produced upwards into a conspicuous spine.

HAB. Tinpahar, on the eastern flank of the Ráj máhal Hills; Ceylon (*Stål*); and Kulu, Kangra, in the N.-W. Himalayas.

The names proposed by me for this remarkable form have priority over those of Stål by several months.

EPISCOPUS CHALYBEUS.

Schizocephala chalybea, Burm., Handb. d. Entom. 1839, vol. ii, p. 552.

Oxyophthalma chalybea, Saussure, Mém. Orthopt. 4me fasc. 1872, p. 12, fig. 22 a, ♂.

Episcopus chalybeus, Stål, Syst. Mant. 1877, p. 18, from Damara Land.

♀. Organs of flight abbreviated. Tegmina about $1\frac{1}{2}$ times as long as the pronotum, scarcely extending to the middle of the fourth abdominal

somite, thin-coriaceous, opaque, light yellowish green, the anal gusset alone membranous and semihyaline. Wings reaching to a little beyond the end of the 3rd abdominal somite reduced nearly to a quadrant of a circle, their anal emargination almost none, their anterior area semicoriaceous, yellow, their posterior area at the base and along the abdominal margin membranous and milky like the anal gusset of the tegmina, ornamented in the middle by a large violet-brown metallic blotch (on which the veins are broadly margined with paler and yellower brown), at the basal end of which are 3 or 4 small opaque yellowish spots on transverse veinlets, and between which and the outer margin are alternate arcs of violet-brown and opaque yellow.

Total length 47 millims.; length of pronotum 11; of tegmina 16; of wings 12·5.

HAB. South Africa (*J. P. Mansel Weale*).

DYSAULES LONGICOLLIS.

Stål, Syst. Mant., 1877, p. 18, ♂ *non* ♀, from Bengal.

♀. Wings and tegmina, abbreviated, semiopaque; the latter scarcely longer than the pronotum, yellowish horny with the meshes all faintly smoky or sordid, and with the apex and a discoidal punctular spot fuscous; the former with the anal emargination very slight and shallow and obtuse-angled, with the anterior area reddish-horny tipped with fuscous, and the posterior bright yellow and bearing near the base a large oval dark violet-fuscous patch, which is succeeded by a number of concentric lines of the same colour extending to and becoming successively closer and closer together towards the outer margin, where they unite to form with the fuscous apex a fuscous outer border decreasing from the apex to the posterior angle of the organs.

Total length 56 millims.; length of pronotum 18; of tegmina 19, width of tegmina 6; length of wings 15.

♂. ♀. Anterior femora marked on the inside just in front of the unguis by a small round black spot.

HAB. ♂ ♀ Kulu, Kangra, in the N.-W. Himalayas and Bengal (*Stål*).

Var. BREVIPENNIS. ♀. Organs of flight more abbreviated; the tegmina being shorter than the pronotum, and the wings having the shape of a quadrant of a circle with the anal emargination less evident.

Length of pronotum 18·75, of tegmina 15·5, and of wings 12·5 millims.

HAB. Bangalore, Mysore, S. India: obtained by a soldier of H. M.'s 45th Regt., whom I formerly employed to collect for the Museum.

The eyes in all specimens of the species are furnished near the summit with a very minute and smooth granule, or blind spot, overlooked by Stål.

Subfamily MANTIDÆ.

GONYPETA AUTHLEMON, n. sp.

♀. Body and appendages pale fleshy brown or earth-coloured thickly punctulated and marbled with darker; the still darker markings of the tegmina and legs of a rich warm vandyke-brown, arranged on the latter in rings, especially on their two terminal divisions; postacetabular portion of the prosternum, all but the anterior margin of the mesosternum, and the intermediate coxæ internally, jet-black.

Facial shield crescentic, about thrice as broad at its anterior or inferior margin as it is long. Pronotum strongly dilated at the insertion of the fore legs, whence it narrows to either end, its setulose margins scarcely denticulated and slightly hollowed out posteriorly; the disc of its anterior lobe convex, raised into a prominent trilobed obcordiform boss, that of its posterior lobe bearing an indistinct raised median longitudinal line, on either side of which is a row of smooth and very low rounded tubercles arranged in four pairs, of which the one next to the posterior margin of the somite is the most prominent, coloured dark brown, and separated from those in front by a transverse depression.

Tegmina subcoriaceous, abbreviated, about $2\frac{1}{2}$ times as long as the pronotum, not reaching to the extremity of the abdomen, their marginal field spotted longitudinally with rich dark brown, their veins and long linear stigma whity-brown, the former spotted and streaked with dark brown, their membrane concolorous with the body and legs, their discoidal field marked across the middle of its length with a large spot or band narrower at each end and broader in the middle, their posterior area or anal gusset with the meshes brown and the net-work whity-brown, their interior radial vein and the first branch of the ulnar both simple and undivided, and the anal and axillary veins anastomosed very close to the posterior margin. Wings semiopaque, dull red, with the outer margin of both areas rather narrowly margined with fuscous, on which the transverse veins are whity-brown indistinctly edged with subhyaline; anterior margin having the veins towards the apex streaked with darker and the membrane paler and consequently presenting a spotted appearance; anal emargination distinct, the apex of the posterior area reaching the level of that of the anterior.

Legs all annulated with bands of brown punctulations, the anterior ones externally; with the first joint of the tarsus in all longer than the rest taken together. Anterior tibiæ more richly (almost black) banded internally than externally, armed below in the outer edge with 11 and on the inner with 9 spines exclusive in each case of the terminal claw; anterior

coxæ scarcely denticulated on the upper crest, furnished with hairs rather than with spines, punctulate externally but internally washed with fuscous along the middle; femora dilated, triangular, only about twice as long as broad with their superior crest sharp and arcuate, and with a large oval black blotch preceded by and marked with a whity-brown patch on their inner face.

Total length (about) 28 millims.; length of pronotum 5·75, of which the anterior lobe is 2·5, width of pronotum at dilatation 3·5; width of head 5·3; length of tegmina 15, width of tegmina 4·5, of marginal field 1; length of wings 12, width of their fuscous outer border about 1; length of fore coxa 6, femur 6·5, width of femur at angulation 3; length of intermediate femur 8, tibia 6, tarsus 6; of posterior femur 9, tibia 9·5, tarsus 9·5.

HAB. A single specimen was obtained at Minthantoung, on the Tenasserim river, near Mergui, by Dr. J. Anderson on December 22nd, 1882.

EUCHOMENA THORACICA.

Mantis (Thespis) thoracica, De Haan, Orthopt. Orient. p. 94, ♀.

Phasmomantis ? thoracica, Saussure, Mélanges Orthopt. i. 3^e fasc. p. 192 (44); *ibid.* p. 403 (279).

Fischeria thoracica, Saussure, *op. cit.* ii. 4^e fasc. p. 58.

Euchomena thoracica, Wood-Mason, Ann. and Mag. Nat. Hist. 5th ser. vol. i, 1878, p. 144, ♀.

Mantis heteroptera, De Haan, *op. cit.* p. 78, pl. xviii, fig. 1, ♂ (*nec* fig. 2, ♀).

Many years ago I recognized an insect obtained by my native collector at Johore in the Malay peninsula, as the *Mantis thoracica* of De Haan, a species briefly described in Latin from a specimen without locality, and in 1878 I published a short account of it referring it to the genus *Euchomena*. I have since received from Mr. H. O. Forbes, who obtained the insects at Bantam in the island of Java, two spirit-specimens of the male of De Haan's *Mantis heteroptera*, which, on comparison with the female insect above-mentioned, prove to be examples of the opposite sex. The insect from Celebes considered by De Haan to be the female of his *Mantis heteroptera* consequently represents, as indeed its totally different structure shows, a totally distinct species, for which the name *heteroptera* may conveniently be retained.

The following are the measurements of one of Mr. Forbes' specimens of the male:—

Total length of body 62·5 millims.; height of head 3, breadth of head 6; length of pronotum 28, of which the anterior lobe is 5, breadth of pronotum at narrowest part just behind dilatation 1·5; length of tegmina 35, width of tegmina across middle 6, width of marginal field 1·3; length

of abdomen 24; of fore coxa 12·5, of femur 15, of its unarmed part 8; of intermediate femur 15, tibia 12·5; of posterior femur 16·3, tibia 16·3.

The fore tibiæ are armed with 7—14 teeth.

The legs are all banded and the apex of the fore femur is dark brown on the inner face, as in the female.

HIERODULA (SPHODROPODA) QUINQUEDENS.

Mantis 5-dens, MacLeay, King's Survey.

Hierodula quinquedens, Mél. Orthopt. 4me fasc. p. 42, ♀.

This curious species unquestionably belongs to the section *Sphodropoda* as by Stål defined; being provided with a marginal series of tubercles on the under surface of the anterior lobe of the pronotum, as well as with a præacetabular spine, and having the margins of the outer face of the fore femora granulated. The form and colouring of the fore coxæ are remarkable: these are broadly bevelled rather than grooved at the upper margin of their inner face, and the bevelled edge is rich orange-coloured marked with white or lighter vertical stripes, the prolonged bases of the marginal spines, the rest of the surface being pale violet. The colours of the tegmina and wings are no less remarkable, the latter being hyaline yellow, but the former opaque reddish brown varied with yellow of the colour of the stigma throughout except on the under side of the marginal field, which is red-violet broadly bordered externally with black.

The front edge of the tegmina is denticulate, but the four posterior femora are devoid of all traces of a lateral ridge; as in *H. (S.) dentifrons*, Stål.

HAB. Trinity Bay and the northern territory of South Australia (*C. French*).

HIERODULA (SPHODROMANTIS) BICARINATA.

Hierodula bicarinata, Saussure, Bull. Ent. Suisse. vol. iii, 1869, p. 68, ♂ ♀, et Mél Orthopt. 3me fasc. 1871, p. 222, pl. 5, fig. 22, ♀.

Mantis kersteni, Gerstaecker, Arch. f. Naturg. 1869, p. 209, ♂, et v. d. Decken's Reisen in Ost-Africa 2te Band 2te Abth., 1873, p. 13.

I have a large series of both sexes of this species from the Cameroon Mountains, Somali Land, South Africa, and Sierra Leone.

Like the closely allied *H. gastrica*, Stål, this species has the front edge of the tegmina strongly toothed* so as to serve as a stridulating organ, and a strong ridge on the apical half of the upper or posterior face of each of the posterior femora, by which doubtless the toothed edge

* See Fig. 2 of my memoir 'On the Presence of a Stridulating Apparatus in certain Mantidæ,' in Trans. Ent. Soc. 1878, p. 263 *et seq.*

of the partially separated tegmina is rubbed; for, if the tegmina of a limply-articulated spirit-specimen be moved horizontally outwards, so as to be slightly separated from one another, their toothed anterior margin comes quite naturally into relation with these ridges, and, if either of the four posterior legs be then rapidly moved backwards and forwards, a crepitating or rasping sound is given out, which in the living insect, with its wings so disposed as to act as resonators, would, I feel confident, be as loud as that made by many grasshoppers in scraping their toothed femora across the sharp projecting nervures of their tegmina.

While I was engaged in correcting the first proof of this paper Mr. J. G. Furnivall, a gentleman who had lived and travelled for many years in South Africa, informed me that stridulating Mantises very frequently came under his notice during his residence in that country; that the sounds emitted by them were as loud as, but more crepitating in character than, the hiss of a large snake; and that, on account of their possessing these sound-producing powers in so eminent a degree, it was a common practice with native children to bring specimens of them alive as curiosities to the European settlers. The species observed by Mr. Furnivall was in all probability *Idolomorpha capensis*, Burmeister.

HIERODULA (SPHODROMANTIS) ARABICA, n. sp.

Hierodula trimacula, Wood-Mason, Ann. & Mag. Nat. Hist. 1878, 5th ser. vol. i, p. 147, (*nec* Saussure).

♀. Very closely allied to *H. (S.) bioculata*, Burm., but differing in its much less expanded pronotum (which is scarcely more enlarged anteriorly than that of *H. trimacula*), in its more pointed and thinner tegmina (which are thin-coriaceous in the marginal field, but membranous and only slightly clouded throughout behind the principal nervure), in its less strongly spined coxæ (two or three spines of which are similarly connected with yellowish callosities on the inner face), and in the four-branched discoidal vein of its wings.

Total length 65; length of head 7·75; breadth of head 9·5; length of pronotum 22·3, of which the anterior lobe is 6·5; length of tegmina 43, breadth 13, of marginal field 4; length of wings 37; of fore coxa 17, femur 20; of intermediate femur 17·5, tibia 17; of posterior femur 21, tibia 23·5.

HAB. Oman, Arabia. Obtained by Colonel Miles.

The anterior edge of the tegmina is delicately toothed and the four posterior femora are laterally ridged; the sides of the anterior lobe of the pronotum are peculiarly straightened as if truncate; and the fore tibiæ are armed with 10 teeth on the outside and with 16 or 17 on the inside.

HIERODULA (SPHODROMANTIS) MUTA, n. sp.

♀. Of small or moderate size, green.

Facial shield broader than long, 2-4 carinate, the two lateral carinae obsolescent. Pronotum of about the same shape and proportions as in *H. trimaculata*, but with the margins more narrowly rounded at the dilatation, and very distinctly denticulate nearly to the base of the posterior lobe.

Organs of flight extending little if at all beyond the extremity of the abdomen, with the apex of their anterior area sharply pointed. The tegmina coriaceous with the posterior margin broadly, and the anal area wholly, membranous; their anterior edge appearing indistinctly and irregularly jagged under a lens; their stigma elongate, narrow, with a brown point at either end. Wings hyaline a little obscured with greenish along the front margin and at the very apex, where, also, the transverse venulation is denser; their discoidal vein two-branched on one side and three on the other.

Fore coxa armed on the upper crest with numerous very small teeth (five or six of which, a little larger than the rest, are yellow-based, and arise from the inner face), devoid of the usual marginal groove, but ornamented on the inner face with two large subquadrate or subrotundate depressed yellow spots extending from the edge of the upper crest for more than two-thirds of the distance towards the lower margin, separated from one another by a large oblong jet-black spot about $1\frac{1}{2}$ times as large as either of them, and each bounded at its free end by a jet-black line, and with a very much smaller yellow spot touching the black encircling line of the basal one of the large spots; posterior femora not ridged on their upper or posterior faces, as in the stridulating species. The fore tibiae are armed in the outer side with 10 (there are only 8 and a rudiment on one tibia, owing probably to an injury received during larval life), and on the inner with 13 teeth.

Total length 57 millims.; length of head 6·5, breadth of head 8; length of pronotum 19, of which the anterior lobe is 6, breadth of pronotum at dilatation, 6; length of tegmina 36, breadth of tegmina 10, breadth of marginal field 3; length of wings 31; of fore coxa 13, femur 16·5; of intermediate femur, 16, tibia 13·5; of posterior femur 20, tibia 20·5.

HAB. Cameroon Mountains, West Africa.

HIERODULA SIMULACRUM,

Mantis simulacrum, Fabr., Ent. Syst. vol. ii, 21, 34

————— Burm., Handb. d. Entom., vol. ii, p. 536.

Hierodula simulacrum, Saussure, Mél. Orthopt. 3me fasc. p. 225, fig., 23, ♀, 23 ♂.

A specimen of the female has been received from Mr. H. O. Forbes from Bantam in Java.

HIERODULA STERNOSTICTA, n. sp.

♀. Allied to *H. vitrea*, Stoll, from which it differs in being larger and much more robust, in its much more opaque tegmina (which are finely serrated on the anterior margin so as to serve as stridulating organs), in having the fore tibiæ armed with 12 and 15 instead of 11 and 14 teeth, in having the basal half and the lower apical lobe of the fore coxæ, with the lower half of the base of the fore femora to a little beyond the unguis groove, washed with red on the inside, in the prosternum and mesosternum being symmetrically punctated with dark red-brown of the colour of the lower apical lobe of the fore femora, and in the tegmina being bordered in front with pale red-violet on the underside.

Total length 85 millims.; length of pronotum 30·5, of which the anterior lobe is 9, breadth at supracoal dilatation 10; length of tegmina 52, breadth 20·5, breadth of marginal field 6·5; length of fore coxa 19, femur 24; of intermediate femur 20, tibia 18; of posterior femur 23·5, tibia 25; breadth of head 12, length 10.

The discoidal vein of the wings is 4 and 5-branched in the type specimen, 3 and 4 in another, and 3 and 4 in a third, in which the anterior branch of the three-branched wing is forked.

HAB. Near Trinity Bay, Australia (*C. French*). Nine specimens, 3 adult females, and 3 nymphs of each sex.

HIERODULA (RHOMBODERA) ATRICOXIS, var. GRANDIS.

♀. Differs from typical *Hierodula atricoxis*, W.-M., in its larger size, in the relatively narrower foliaceous expansions of its pronotum, and in having the two anterior black spots of the prosternum squarish instead of pyriform.

Total length about 100 millims.; length of pronotum 33, of which the anterior lobe is 10, greatest breadth of pronotum 16, breadth of primitive pronotum at supracoal dilatation 11·5; length of tegmina 62, breadth of tegmina 23·5, breadth of marginal field 7·5; length of fore coxa 21·5, femur 27; of intermediate femur 22·5, tibia 20·5; of posterior femur 27, tibia 29·5.

HAB. Murray Island, Torres Straits.

HIERODULA (RHOMBODERA) FLAVA.

Mantis flava, De Haan, Orthopt. Orient. p. 68, ♂ ♀, from Java.

Mantis macropsis, Giebel, Zeitschr. f. gesamt. naturwiss. 1861, p. 111, from Banka.

Hierodula (Rhombodera) macropsis, Saussure, Mél. Orthopt. 3me fasc. p. 218, fig. 18, ♀; Suppl. p. 408; et 4me fasc. p. 36, ♂.

A specimen of the female of this very distinct species has been forwarded to me from Bantam in Java by Mr. H. O. Forbes.

The fore margin of the tegmina is minutely and irregularly jagged, but not modified to serve as a stridulating organ, as in some of the other Eastern species of the same section.

HIERODULA (RHOMBODERA) BASALIS.

Mantis basalis, De Haan, Orthopt. Orient. p. 67 ♀.

Hierodula (Rhombodera) basalis, Saussure, Mém. Orthopt. 4 me fasc. p. 35, fig. 6, 7, ♀, from Java and Malacca.

Three fine specimens of the female were recently obtained near Mergui by Dr. J. Anderson, all having the stigma encircled with rich dark brown. From the anal orifice of one of them, there project the terminal coils of two specimens of a species of *Gordius* measuring five and eight inches in length respectively.

The fore margin of the tegmina is not serrated.

MANTIS, Linn., Sauss.

All the species furnished with 9 spines (African) on the outer edge of the fore tibæ are distinguished from those (European, Asiatic, and African) with only 7 by having marginal denticles on the under surface of the anterior lobe of the pronotum, as in *Sphodropoda* and *Sphodromantis*, sections of *Hierodula*.

The following species belongs to this category :—

MANTIS CALLIFERA, n. sp.

♀. Pronotum much slenderer than in *M. pia*, Serville, and more suddenly narrowed behind the insertion of the fore legs.

Anterior coxæ armed on the upper crest with numerous minute denticles, and ornamented on the inside with four large highly polished convex oval callosities (red or yellow in the living insect) connected with the bases of as many minute spines springing from the side of the crest; femora without black marks; tibæ armed with 9 spines on the outer edge and 13 on the inner in one specimen and with 8 to 9 and 12 to 13 in the other.

Total length about 62 millims.; of pronotum 20·75, of which the posterior lobe is 15, width of pronotum at dilatation 5·25; length of tegmina 47; of fore coxa 14, femur 18; of intermediate femur 14, tibia 11; of posterior femur 17·5, tibia 17·5.

HAB. Cape of Good Hope,—two specimens.

IRIS ORIENTALIS, n. sp.

♂. ♀. Much slenderer than *I. oratoria*, Linn., from which it also differs in being without a trace of talc-like fenestræ in the anterior area of the wings.

♂. Organs of flight long, very delicately clouded with green and almost perfectly hyaline everywhere except in the marginal field of the

tegmina and at the anterior margin of the wings, in which parts they are semiopaque bright green; posterior area of wings ornamented with a large oval violet-fuscous subbasal blotch succeeded by four or five concentric lines of the same colour, which are successively narrower and less distinct from within outwards.

♀. Organs of flight much abbreviated. Tegmina semicoriaceous, light bright green like the body and legs. Wings reduced nearly to a quadrant of a circle, the margin and the apex of their anterior area yellowish-green, the rest of the anterior, together with the base of the posterior, area dull wine-red, their posterior area bearing a huge violet-fuscous discal blotch, between which and the outer margin the ground-colour is yellow marked with a series of about four concentric violet-fuscous lines successively decreasing in width and distinctness from within outwards.

Total length ♂ 40, ♀ 42 millims.; length of pronotum ♂ 11, ♀ 12, width of pronotum at dilatation ♂ 3, ♀ 3.5; length of tegmina ♂ 28, ♀ 13, width of tegmina ♂ 6.5, ♀ 5; length of wings ♂ 25, ♀ 10.5.

HAB. Kulu Valley, Kangra, in the N.-W. Himalayas, where it was discovered in extraordinary numbers in 1880 by Mr. A. G. Young.

POLYSPILOTA INSIGNIS, n. sp.

♂. Head $1\frac{1}{2}$ times as broad as long; facial shield pentagonal, also about $1\frac{1}{2}$ times as broad as long; ocelli all oval and equal and rather close together, the two posterior being not much further from one another than either of them from the anterior; antennæ black, concolorous with the head at base.

Posterior lobe of pronotum about $3\frac{1}{2}$ times as long as the anterior, strongly roof-shaped with a prominent but smooth raised dorsal ridge; supracoxal dilatation well-developed, rounded, on either side of which the margins of the pronotum are tolerably finely denticulate for about half the length of each lobe.

Organs of flight very long, extending by about one-fourth of their length beyond the extremity of the abdomen. Tegmina semicoriaceous, ferruginous-brown, the posterior margin and the anal gusset being alone membranous and pale smoky or sordid; marginal field with a large opaque black-fuscous blotch at the base followed by another and by six (including the apical one) fuscous-black transverse bands all commencing at the costa and extending to the middle of the discoidal field, growing paler as they go, and finally blending insensibly with the sordid of the posterior moiety; anal gusset with its transverse veinlets pale and lined with hyaline.

Wings dark smoky-quartz-coloured, with the longitudinal veins much darker and the transverse veinlets much paler and very narrowly lined with

hyaline on both sides; with the apex of the anterior area and six bands all commencing at the anterior margin and extending successively from the base of the organ further and further into the posterior area (where they pass insensibly into the paler ground-colour) very much darker smoky-quartz-colour; with the venation and membrane between these bands much lighter than elsewhere, so that the organs appear alternately banded with light and dark; and with the outer margin of the posterior area very narrowly semihyaline.

Fore femora and coxæ bifasciated externally with fuscous, the latter furnished with 8—9 minute, slanting, sharp, conical spinules on the upper crest, the former black on the inner side from the base nearly to the apex; fore tibiæ armed with 10 + 15 spines on their two inferior edges; the femora of the four posterior legs present obscure traces of transverse fasciæ.

Abdominal terga black-fuscous with the lateral margins paler.

Total length 85 millims.; of pronotum 31·5, of which the anterior lobe is 7, width of pronotum at supracoal dilatation 7·75; height of head 7, breadth of head 9·5; length of fore coxa 16, femur 19·5; of intermediate femur 20, tibia 18·5; of posterior femur 24, tibia 25; length of tegmina 67, breadth of tegmina (across middle) 12·5; length of wings 59.

HAB. Cameroon Mountains, West Africa.

The female differs from the male in her larger size and stouter build, and in her shorter and broader organs of flight, the tegmina being only about $1\frac{1}{2}$ times the length of the pronotum and the wings reduced nearly to the form and proportions of a quadrant of a circle.

Genus MESOPTERYX, Sauss.

Bull. Entom. Suisse, vol. iii, 1870, pp. 234, 235.—Mél. Orthopt. 3me fasc. p. 188.

MESOPTERYX ALATA.

Saussure, op. supra. cit.

HAB. The Philippines. Manilla.

MESOPTERYX PLATYCEPHALA.

Tenodera platycephala, Stål, Syst. Mant. 1877, p. 56 ♀.

♂. Much slenderer than the female.

Pronotum smooth and rounded, carinate only for a short distance from the base; slightly enlarged at the insertion of the forelegs; the transverse impressed black lines of the underside of its lateral expansions having the form of elongate puncta barely extending half the distance from the base to the margin.

Organs of flight when closed not extending further than the 8th abdominal somite, hyaline with horn-coloured (? green in the living insect) veins everywhere except in the marginal field of the tegmina (which is coriaceous opaque and bright-green margined posteriorly along and behind the principal vein with semiopaque horn-brown (? green) concolorous with the veins and shining stigma), and at the anterior margin of the wings, which is obscured with horn-brown (? green).

The cerci are long and compressed from the middle of their length to the tip, in both sexes, but especially in this sex, in which they are narrowly foliaceous at the extremity.

Total length 97 millims.; length of pronotum 35·5, of which the posterior lobe is 29; length of head 5, width of head 8·5; length of tegmina 51; length of fore coxa 16, femur 18·5; of intermediate femur 19, tibia 17; of posterior femur 25, tibia 25.

The above description has been drawn up from a specimen captured by any native collector between Moulmein and Meetan in 1877.

Another specimen from Nazeerah measures pronotum 33·5 and tegmina 48, and a third, obtained by Mr. S. E. Peal in the Sibsagar district, Assam, pronotum 34 and tegmina 50·5 millims.

Specimens of the female differ a good deal in the degree of development of the organs of flight, two specimens from Moulmein measuring—total length about 100—105 millims.; length of pronotum 37·75—39, of which the posterior lobe is 30·5—31·5; length of head 6·75—7, width of head 10—10; length of tegmina 51·5—55·5, width of tegmina 11—11, of marginal field 3—3; length of fore coxa 19·25—20, femur 21—21·75; of intermediate femur 20—20·5, tibia 19—20·5; of posterior femur 26—27, tibia 29—31; one from the Himalayas—total length 110 millims.; length of pronotum 42, of which the posterior lobe is 34; length of head 7·5, breadth of head 10·5; length of tegmina 55; of fore coxa 21, femur 24; of intermediate femur 23, tibia 21; of posterior femur 30, tibia 33; one from Sibsagar—total length 108 millims.; of pronotum 42, of which the posterior lobe is 34; length of head 7, breadth of head 10·5; length of tegmina 40; of fore coxa 21·5, femur 24; of intermediate femur 22·5, tibia 21·25; of posterior femur 29·5, tibia 32; and the specimen described by Stål having the tegmina scarcely longer than the pronotum.

HAB. One male from the banks of the Houngdarau, on the road from Moulmein to Meetan, Upper Tenasserim; another from Nazeerah (Dr. Foster), and a third from Sibsagar (*S. E. Peal*), Assam. Two females from Moulmein (*Captain Hood*), a third from the 'Himalayas,' belonging in all probability to the Asiatic Society's collection, and a fourth from Aideo, Sibsagar (*S. E. Peal*).

MESOPTERYX ROBUSTA, n. sp.

♀. Prothorax longer and more robust than in *M. platycephala*, Stal, and slightly dilated at the insertion of the fore legs; its dorsal are roof-shaped, with the raised median longitudinal line coarse and prominent throughout, and with the free edges of its relatively narrower foliaceous expansions straight posterior to the supracoxal dilatation instead of slightly convex and the under surface coarsely rugose-punctate, with the puncta translucent instead of black.

Organs of flight when closed reaching just to the extremity of the last, abdominal somite. The tegmina green with the marginal field coriaceous, the rest of the organs being membranous. The wings hyaline with the anterior margin alone clouded with green.

Legs rather more robust. The fore tibiæ armed with 12 blunt teeth on the outside and with 18 on the inside below.

Cerci only slightly compressed.

Total length 118 millims.; length of pronotum 45·5, of which the posterior lobe is 36·5; length of head 7·5, breadth 11; length of tegmina 65, breadth of tegmina 14·5, of marginal field 3·5; length of fore coxa 24, femur 27·25; of intermediate femur 23, tibia 21·25; of posterior femur 29·25, tibia 31·75; of cerci 12·5.

HAB. A single specimen obtained probably by myself on South Andaman Island in 1872, but possibly by one of the Museum collectors under Captain J. Butler in the Naga Hills, Assam.

